

REMARKS

Prior to entry of this Amendment, claims 11-23 are pending in the application and have been rejected.

Claim Amendments

In the present Response and Amendment, claim 11 has been amended to recite inclusion of a plasticizer in the flexible sheet wall lining. Support for this claim amendment can be found throughout the specification, for example, in Examples 2, 4, 5 and 6.

New claims 24-28 have been added to recite additional features of the flexible wall lining. Support for these new claims can be found throughout the specification, and no new matter has been added. For example, support for new claims 24 and 25 can be found at page 7, lines 31-32 and Examples 1 through 6; support for new claims 26 and 27 can be found at Examples 1, 3, and 5; and support for new claim 28 can be found at Examples 2, 4, 5 and 6. For additional information relating to the specific chemical name of the flame retardant (as opposed to the trademark) utilized in Examples 1, 3, and 5, Applicants refer to the enclosed Product Data Sheet provided by Great Lakes Chemical Corporation, for Reofos™ 50 flame retardant.

Upon entry of the present amendments, claims 11-28 will be pending.

Claim Rejections – 35 USC § 102

Claims 11, 13-20, and 22 have been rejected under 35 U.S.C. 102(b) as being anticipated by Beck (U. S. 5,087,508). Applicants respectfully disagree and request reconsideration of this rejection.

The Beck patent relates to signs adapted to resist formation of dew and frost thereon (see “Field of the Invention” at Column 1). Typically, signs of the Beck patent “will be used in outdoor applications such as along roads and highways” (Column 1, lines 9-11). Generally, the signs comprise “at least one outer layer that has a display surface bearing indicia, e.g., speed limit or navigational information, and a thermal reservoir that is disposed behind the outer layer and contains at least one phase change material that undergoes at least one phase change between about -20°C and about 40°C” (column 1, lines 58-64).

Figure 1 of the Beck patent illustrates a cross-sectional view of a portion of an illustrative embodiment of a sign of the invention. The signs comprise an outer layer 12 having display surface 14 bearing indicia, thermal reservoir 16 disposed behind outer layer 12, optional heat barrier 18 disposed behind thermal reservoir, and optional support panel 20, e.g., a conventional aluminum panel, disposed behind heat barrier 18 (column 2, lines 52-58). The outdoor signs are designed to withstand exposure to sunlight, rain, wind, and abrasion. See column 2, lines 11-25 for discussion of these and other advantages of the Beck invention, which relate to the outdoor application of the device.

Turning to the claimed invention, the invention relates to wall linings, especially wall linings that provide enhanced thermal efficiency (see “Background of the Invention” at page 1). Wall linings can comprise paint and/or a sheet material like wall paper or a wallcovering (page 1, second paragraph).

The wall lining is preferably in the form of a flexible sheet, that can be applied to a wall in a similar way to conventional wall papers and vinyl wall linings. The finished sheet could be put in the form of a roll for shipping and storage, and unrolled for application to a wall (page 8, first paragraph). Although the coating is suitable for application to walls, in practice it could be applied to other elements such as floors or ceilings (page 9, first paragraph).

According to the invention, when the wall lining is applied to the interior wall of a building, it can assist in stabilizing the temperature of rooms within the building around the working temperature, and thus enhance the building’s energy efficiency (page 4, second paragraph).

The Beck patent fails to teach, or even suggest, at least the following elements of independent claim 11: a flexible sheet wall lining and a composition comprising a plasticizer.

At several points, the Office Action assumes the Beck patent teaches a flexible sheet wall lining. However, there is simply no teaching or suggestion of such an element within the Beck patent.

The outdoor sign of the Beck patent is not a flexible sheet; in fact, the Beck patent describes ways in which the rigidity of the outdoor sign can be enhanced. For example, at column 6, lines 50-55, the Beck patent teaches that an advantage of the optional heat barrier 18

“is that it may impart additional structural integrity, e.g., increased load bearing ability, dimensional stability, rigidity, etc., to sign 10.” Another optional element of the outdoor sign described in the Beck patent is a support panel 20, which can be provided behind thermal reservoir 16. Alternatively, if sign 10 has heat barrier 18, a support panel 20 can be included behind the heat barrier 18. As stated in the Beck patent, “support panel 20 can impart additional structural integrity to sign 10.” See column 6, lines 56-62.

Further, the outdoor sign of the Beck patent is not a wall lining as described and claimed in the present application. The Beck patent describes signs for outdoor use that are adapted to resist formation of dew and frost. This is completely different from the flexible wall linings recited in the present claims, which can be used as paints, wallpaper or other wallcovering that is applied to interior walls, floors or ceilings within buildings. Further, the function of each of the outdoor signs described in the Beck patent is completely different from the function of the flexible wall linings recited in the present claims. The signs described in the Beck patent are designed to resist dew and frost by maintaining the temperature of the sign display surface. As a result, the display surface retains a greater degree of legibility. See abstract. In contrast, the flexible wall linings recited in the present claims act to stabilize the temperature of interior rooms within a building, thereby enhancing energy efficiency of the building (see page 4, second paragraph of the specification).

In addition, there is no teaching or suggestion of a composition comprising a plasticizer as recited in independent claim 11, or the specific plasticizers recited in new claim 28.

In addition to the above elements, the Beck patent fails to teach, or even suggest, elements of other dependent claims as well. At paragraph 15 of the Office Action, it is concluded that example 1 and comparative example A disclose that phase change materials in the form of particles have a size in the range of 10-100 microns. However, the example and comparative example describe the size range of a foam, not a phase change material.

Foams, as described in the Beck patent, are distinct from phase change materials. Foams are described as useful for a “member of the sign.” For example, as a member of the sign, the foam can shrink or expand in conformity with the volume of the phase change material. See column 4, lines 25-30. The foam can be used as insulation, when used as a foam binder material

within the sign. See column 5, lines 43-50. The foam is also described as an optional heat barrier 18 of the sign. See column 6, lines 50-55.

Further, the Examples provided within the Beck patent utilize foam as an additional element of the sign that is distinct from the phase change material. In example 2, a “thick piece of polystyrene foam insulation is laminated to the other side [of the thermal reservoir] as a heat barrier.” See column 8, lines 37-42. Similarly, in example 1, syntactic foam is added as a binder material to the sign. The foam comprises a curable polyester, hollow glass microspheres, and a catalyst. The size range cited in the Office Action describes the hollow glass microspheres.

Additionally, in Example 1, Zone D of the sign is included as a comparative. Zone D of the sign is described as containing “syntactic foam only,” while Zones A through C include phase change materials. See column 7, lines 25-43. At the conclusion of Example 1, Zone D is described as resisting dew formation for about 1 hour after being placed outside, as opposed to Zones A and B (resisted dew formation at least until early morning), and Zone C (resisted dew formation on the two coolest nights). See column 7, line 64 through column 8, line 15.

At paragraph 20 of the Office Action, it is concluded that “Beck clearly shows the wall lining comprises from 30% to 60% by volume of the phase change material(s).” In support of this conclusion, the Office Action states that example 1 clearly shows the percent volume of phase change materials. However, Example 1 of the Beck patent describes placing the first phase change material (1-dodecanol) and the second phase change material (mixture of WITCO 85010-1 Wax and 1-dodecanol) into aluminum tubes. See column 7, lines 15-24. The aluminum tubes are then arranged within each Zone of the sign mold. See column 7, lines 25-34. There is no indication of the amount of each phase change material disclosed in this Example.

In summary, the Beck patent fails to teach or even suggest a flexible sheet wall lining as recited in the present claims. Applicants respectfully request reconsideration and withdrawal of this rejection.

Claim Rejections – 35 USC § 103

Claims 11, 12, 21, and 23 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al (U.S. 5,532,039) in view of Beck. The Office Action concluded “it would have been obvious to one of ordinary skill in the art to employ a combination phase

change materials such as that suggested by Beck and Payne protected from deleterious effects due to exposure to sunlight, rain and abrasion” (page 4 of Office Action).

Applicants respectfully disagree and request reconsideration of this rejection.

The Payne et al. patent describes “a thermal barrier for controlling heat transfer across through buildings, appliances and textile products” (Abstract). The thermal barrier includes opposing, spaced apart sheets which define at least one chamber therebetween. A temperature stabilizing material is disposed in the chamber (Abstract). The thermal barriers “comprise temperature stabilizing material placed, enclosed, or encased between opposing sheets.” Column 4, lines 1-3. The purpose of the thermal barrier described in the Payne et al. patent is to act as a barrier to heat flow (see column 5, lines 8-15; column 3, lines 36-40).

There is no teaching or suggestion of a flexible sheet wall lining comprising a plasticizer as recited in independent claim 11.

The deficiencies of the Beck patent are discussed above and are referred to as they apply to this §103 rejection.

The Office Action fails to state a reason why one of skill in the art would combine the teachings of the Payne et al. patent (which describes thermal barriers for building, appliances and textile products) and the Beck patent (which describes outdoor signs).

Further, even if one of skill in the art were to combine the teachings of the Payne et al. patent with the Beck patent, he or she would not achieve the claimed invention. The references, alone or in combination, fail to teach or suggest a flexible sheet wall lining comprising one or more phase change materials that each exhibit a phase change at a temperature in the range of 5°C to 40°C, and a plasticizer, as recited in independent claim 11.

Claims 12-28 are in dependent form and therefore include all of the limitations of claim 11. As such, Applicants submit these claims are patentable for at least the reasons noted herein for claim 11.

Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the foregoing is fully responsive to the outstanding Office Action. Examination of all claims together, and early favorable consideration and passage of the above application to issue is

earnestly solicited. In the event that a phone conference between the Examiner and the Applicant's undersigned attorney would help resolve any issues in the application, the Examiner is invited to contact said attorney at (651) 275-9836.

Respectfully Submitted,

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KGW/44863



Great Lakes Chemical Corporation

PA

Business Unit or
Division

Polymer Additives
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Document Type

Technical Information

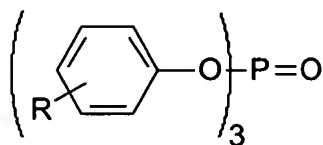
Product Name

Great Lakes Reofos[®] 50

Phosphorus Flame Retardant

Reofos 50 is a synthetic isopropylated triaryl phosphate ester flame retardant, which can be used in a wide variety of resins, particularly PVC.

Triaryl Phosphate Isopropylated
CAS Reg. Number [68937-41-7]



R = H or isopropyl

Typical Properties

Appearance	Clear Liquid
Phosphate Content, %	8.3
Viscosity @ 25 °C, cps	53 - 64
Specific Gravity @ 20 °C, g/ml	1.17 - 1.18
Acidity, mg KOH/g. Max	0.1

Thermogravimetric Analysis (10 mg @ 10 °C/minute under N₂)

Weight Loss, %	5	10	50
Temperature, °C	216	235	284

Solubility (g/ 100 g Solvent)

Water	Insoluble	Toluene	Complete
Methylene Chloride	Complete	Methyl Ethyl Ketone	Complete
Methanol	Complete		

Reofos 50 is recommended as a flame retardant for PVC, flexible polyurethanes, cellulosic resins, and synthetic rubber. **Reofos 50** is also recommended as a flame retardant processing aid for engineering resins, such as modified PPO, polycarbonate and polycarbonate blends.

The use of proper protective equipment is recommended. Excess exposure to the product should be avoided. Wash thoroughly after handling. Store the product in a cool, dry, well-ventilated area away from incompatible materials. Unless stated, proper storage will permit usage of the product for 6 to 12 months from the date of receipt. For additional handling and toxicological information, consult the GLCC Material Safety Data Sheet.